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| 10/586,205 | 07/13/2006 | Carlo Liberale | CCVDresser030957 CMRN0006 | 4778 |
| 64833 | 7590 | 11/30/2010 | EXAMINER | |
| FLETCHER YODER (CAMERON INTERNATIONAL CORPORATION) | | | SCHNEIDER, CRAIG M | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|---------------------------------------|--|--|
| Office Action Summary | Application No. 10/586,205 | Applicant(s) LIBERALE ET AL. | |
| | Examiner CRAIG M. SCHNEIDER | Art Unit 3753 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 17 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The originally filed specification does not have support for the broader term "inert gas" as claimed in claim 17. The specification has support for "nitrogen".

3. Claim 24 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The originally filed specification does not have support for controlling the submersible actuator based on a target position, feedback, and historical data associated with the submersible actuator.

4. Claim 30 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one

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skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The originally filed specification does not have support for wherein the control circuit is configured to control, the electric motor based on historical data associated with the actuation of the submarine device.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 10-12, 14, 16, 18-22, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johansen et al. (6,595,487) in view of Dalton, Jr. (4,774,383) and Wallace (2005/0016769).

Johansen et al. disclose a system comprising a submersible actuator (1) comprising a first housing (area that encloses the motors) having an electric motor (7 and 8) disposed in a first fluid (col. 5, lines 54-56); and a second housing (area that encloses the control components) having a control circuit, the control circuit is coupled to the electric motor, and the control circuit is configured to communicate with the remote control station (col. 5, line 27 to col. 7, line 17). Johansen et al. fail to disclose that the control circuit is disposed in a second pressurized fluid different from the first pressurized fluid. Dalton, Jr. discloses that electronic circuitry must be protected from the effects of salt water when the circuitry is used in the ocean and must even be protected against contamination by rain, spray, bilge water and grime, all common factors on a seagoing vessel (col. 1, lines 21-27). Wallace discloses that subsea application can encounter pressures as high as 25,000 psi and therefore it may be

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advantageous to pressurize a fluid disposed in a chamber to provide a barrier against ingress of moisture (page 8, Para. 66).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a water tight enclosure for the electronics as taught by Dalton, Jr. and to further provide for a pressurized chamber as taught by Wallace with the electronic chamber of the second chamber of Johansen et al., since sea water is damaging to electronics as taught by Dalton, Jr. and also that underwater pressure could compromise seals therefore a chamber that is pressurized to combat the increased pressure of the depths would further prevent leaks into the chamber as taught by Wallace.

Regarding claim 11, wherein the second pressurized fluid is a pressurized gas. Dalton, Jr. discloses that air is present in the sealed chamber (col. 6, lines 24-32).

Regarding claim 12, the claim is clearly anticipated by the reference.

Regarding claims 14 and 16, wherein the control circuit (col. 6, lines 19-35) is configured to compare a value of a control signal with an average of a predetermined number of previous control signals and wherein the control circuit is configured to control the electric motor based on feedback indicative of a current absorbed by the electric motor. The control circuit of Johansen et al. is capable of performing the functional limitations of claim. Further the control circuit as disclosed by Johansen et al. is capable of performing logic operations which would further lend to the capability of the control circuit to performing the intended use (col. 7, line 61 to col. 8, line 4).

Regarding claims 18 and 19, the system comprising a flow control mechanism (2) coupled to the submersible actuator as disclosed by Johansen et al.

Regarding claim 19, wherein the control circuit is configured to control a speed value (moving or not moving of the valve) and a direction for rotation (opening or closing) of the electric motor based on a target shaft position and a current shaft position sensed by a position sensor (23)(col. 6, lines 23-25). The control circuit of Johansen et al. is capable of performing the functional limitations of the claim.

Regarding claim 20, the apparatus as disclosed per the above meets the claimed method steps.

Regarding claim 21, the method comprising receiving an electrical control signal from a remote control station (34)(col. 7, lines 29-60)(Johansen et al.), processing the electrical control signal in the in the control circuit, and triggering the electric motor to actuate a submerged flow control mechanism (2)(col. 7, lines 25-29)(Johansen et al.).

Regarding claim 22, wherein the at least one electric motor comprises first and second electric motors, and the method further comprises independently controlling the first and second electric motors to enable independent actuation of a submerged flow control mechanism (col. 6, lines 9-10)(Johansen et al.).

Regarding claim 24, the method comprising controlling the submersible actuator based on a target position (closed or open), feedback (col. 6, lines 19-28)(Johansen et al.), and historical data (the last position the actuator moved the valve to) associated with the submersible actuator.

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Regarding claim 25, the method comprising controlling a speed value (moving or not moving) and a direction for rotation of the at least one electric motor based on a target shaft position and a current shaft position (col. 6, lines 23-25) sensed by a position sensor (23)(Johansen et al.). The control unit would remember the last position of the valve to be controlled and therefore would know which direction to move the valve to either move it to the open position or closed position.

Regarding claim 26, the method comprising controlling the submersible actuator based on a first feedback indicative of an actuator position and second feedback indicative of an absorbed current. As identified above the feedback unit would remember the last position (feedback) of the valve to be controlled. When the control unit determines that a condition has arisen that requires the valve to be closed or opened the control unit would have the motor operate to move the valve to the desired position. This movement of the motor would be indicative of an absorbed current and would be confirmed by the position sensor determining that the valve has achieved the desired position.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johansen et al. in combination with Dalton, Jr. and Wallace as applied to claim 12 above, and further in view of Ursel et al. (WO 01/99259)(utilizing US Pat. 6,906,438 for translation).

Johansen et al. in combination with Dalton, Jr. and Wallace disclose a drive shaft (5) and that each motor is independently able to control the drive shaft. Johansen et al. in combination with Dalton, Jr. and Wallace fail to disclose that the transmission

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comprises a worm screw coupled to the transmission shaft and a sprocket coupled to the worm screw and the drive shaft, wherein the electric motors are coupled to the transmission shaft. Ursel et al. disclose a worm screw (26) coupled to a transmission shaft (25) and a sprocket (43) coupled to the worm screw and a drive shaft (col. 1, line 49 to col. 2, line 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a worm screw/sprocket drive system as disclosed by Ursel et al. as the gearing between the motors and drive shaft of Johansen et al. in combination with Dalton, Jr. and Wallace, in order to have a gearing system that prevents slipping.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johansen et al. in combination with Dalton, Jr. and Wallace as applied to claim 10, and further in view of Schoenberg (5,166,677) and further view of Andre (4,902,030).

Johansen et al. in combination with Dalton, Jr. and Wallace disclose all the features of the claimed invention except it does not show the pressure balancing device and where it is connected to the unit, Schoenberg discloses a pressure balancing device (40) that is connected to the first housing (13)(col. 6, lines 55-64). Andre discloses utilizing piston and membrane accumulators interchangeably (col. 5, lines 43-47 and line 63-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a pressure control device attached to the first housing as disclosed by Schoenberg with the device of Johansen et al. in combination with Dalton,

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Jr. and Wallace, in order to be able pressurize the interior of the first housing at various depths.

It would have further been obvious to utilize a membrane accumulator in place of the piston accumulator of Johansen et al. in combination with Dalton, Jr., Wallace, and Schoenberg; since Andre discloses that the piston and membrane accumulators are interchangeable.

9. Claims 17, 23, 27, and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johansen et al. in combination with Dalton, Jr. and Wallace as applied to claims 10 and 20 above, and further in view of Birtcher et al. (2003/0131885).

Johansen et al. in combination with Dalton, Jr. and Wallace disclose wherein the first pressurized fluid is a pressurized lubricating fluid (col. 5, lines 54-56). Johansen et al. in combination with Dalton, Jr. and Wallace fail to disclose that the second pressurized fluid is an inert gas. Birtcher et al. disclose the use of nitrogen in an electronics box in order to provide an inert atmosphere (Para. 81).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize an inert atmosphere in the electronics area as taught by Birtcher et al. for the atmosphere of the second housing of Johansen et al. in combination with Dalton, Jr. and Wallace, in order to provide an explosion proof atmosphere in the second housing as taught by Birtcher et al. and to further provide an atmosphere that will not damage the electronic circuitry.

Regarding claim 27, the structural limitations as claimed have been addressed in the above rejection of claim 17 and also in the rejection of the claims 10 and 18.

Regarding claim 29, wherein the control circuit is configured to adjust a speed (moving or not moving) of the electric motor based on a current position and a target position of the submarine device (col. 6, line 23-25). The control circuit of Johansen et al. is capable of performing the functional limitations of the claim.

Regarding claim 30, wherein the control circuit is configured to control the electric motor based on historical data (last position of the valve) associated with the actuation of the submarine device. The control circuit of Johansen et al. is capable of performing the functional limitations of the claim.

Regarding claim 31, wherein the control circuit is configured to control the electric motor based on feed back indicative of a current absorbed by the electric motor. The control circuit of Johansen et al. is capable of performing the functional limitations of the claim. The position sensors of Johansen et al. would provide the feedback and the movement of the valve by the motor which is confirmed by the position sensors would be indicative of an absorbed current by the motor.

Regarding claim 32, the system comprising a visual recognition device (36)(col. 7, lines 29-33) and a robot interface (3b) coupled to the submersible actuator (col. 5, lines 27-44), wherein the visual recognition device enables viewing of an actuation position associated with the submarine device, and the robot interface enables a robot to control the submersible actuator.

10. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johansen et al. in combination with Dalton, Jr, Wallace, and Birtcher et al. as applied to

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claim 27 above, and further in view of Ursel et al. (WO 01/99259)(utilizing US Pat. 6,906,438 for translation).

Johansen et al. in combination with Dalton, Jr., Wallace, and Birtcher et al. disclose a drive shaft (5) and that each motor is independently able to control the drive shaft. Johansen et al. in combination with Dalton, Jr. and Wallace fail to disclose that the transmission comprises a worm screw coupled to the transmission shaft and a sprocket coupled to the worm screw and the drive shaft, wherein the electric motors are coupled to the transmission shaft. Ursel et al. disclose a worm screw (26) coupled to a transmission shaft (25) and a sprocket (43) coupled to the worm screw and a drive shaft (col. 1, line 49 to col. 2, line 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a worm screw/sprocket drive system as disclosed by Ursel et al. as the gearing between the motors and drive shaft of Johansen et al. in combination with Dalton, Jr., Wallace, and Birtcher et al.; in order to have a gearing system that prevents slipping.

Response to Arguments

11. Applicant's arguments, see remarks, filed 10/19/10, with respect to the rejection(s) of claim(s) 10-13 and 18-22 under 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Johansen et al. in combination with Dalton, Jr. and Wallace.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CRAIG M. SCHNEIDER whose telephone number is (571)272-3607. The examiner can normally be reached on M-F 8:00 -4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Hepperle can be reached on (571) 272-4913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Craig M Schneider/
Examiner, Art Unit 3753
November 23, 2010